Pitpnm2 Cas9-CKO Strategy

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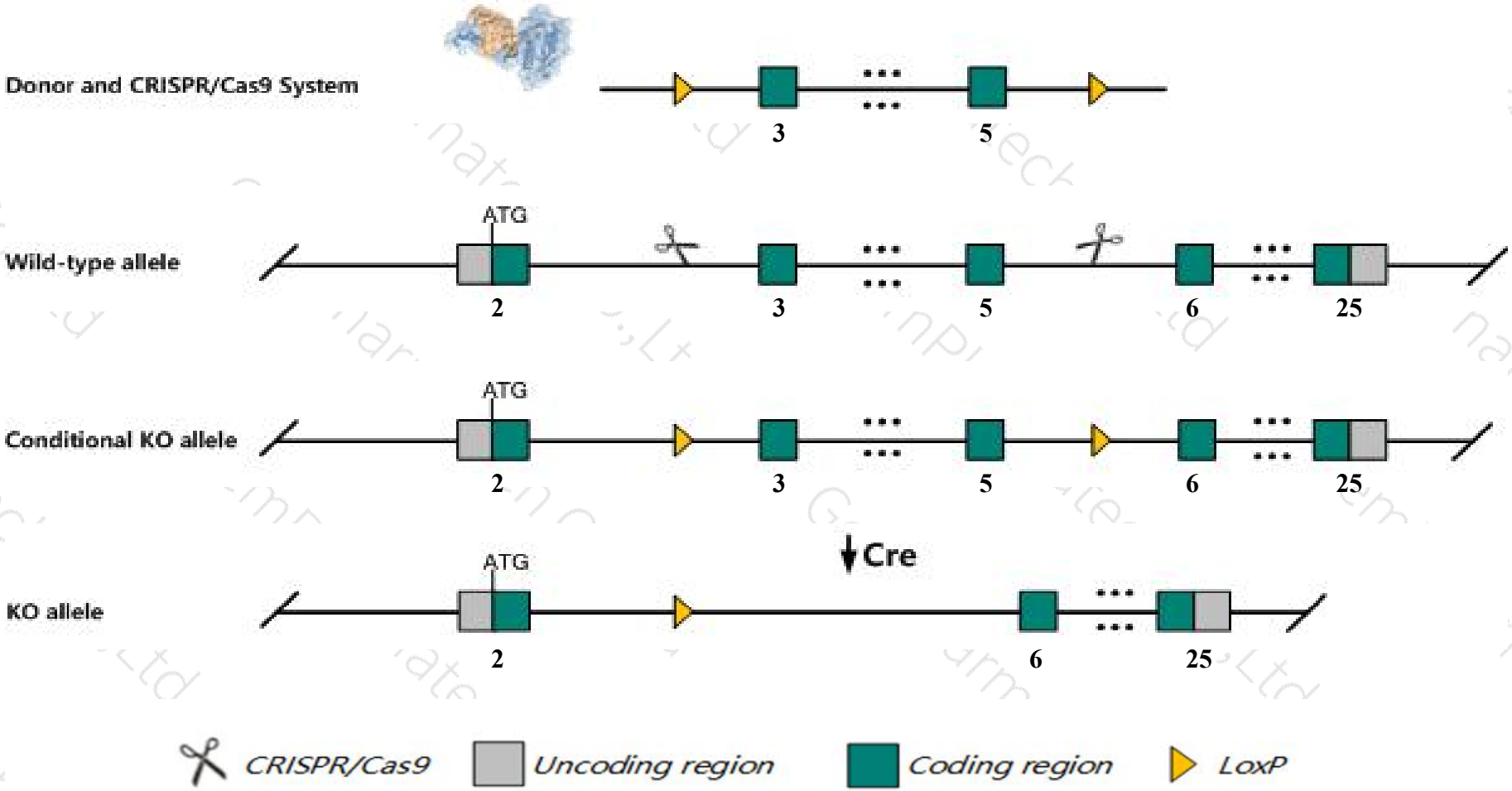
Project Overview

Project Name	***Pitpnm2***
Project type	**Cas9-CKO**
Strain background	**C57BL/6JGpt**

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Pitpnm2* gene. The schematic diagram is as follows:



Technical routes

- The *Pitpnm2* gene has 10 transcripts. According to the structure of *Pitpnm2* gene, exon3-exon5 of *Pitpnm2-209* (ENSMUST00000161938.7) transcript is recommended as the knockout region.The region contains 565bp coding sequence. Knock out the region will result in disruption of protein function.

- In this project we use CRISPR/Cas9 technology to modify *Pitpnm2* gene. The brief process is as follows:CRISPR/Cas9 system and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice.Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.

- The flox mice will be knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

➢ According to the existing MGI data,Homozygous null mice are viable, fertile, and show no defects pertaining to photoreceptor function or survival.

➢ The *Pitpnm2* gene is located on the Chr5. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.

➢ This Strategy is designed based on genetic information in existing databases.Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

Gene information （NCBI）

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Pitpnm2 phosphatidylinositol transfer protein, membrane-associated 2 [Mus musculus (house mouse)]

Gene ID: 19679, updated on 31-Jan-2019

Summary

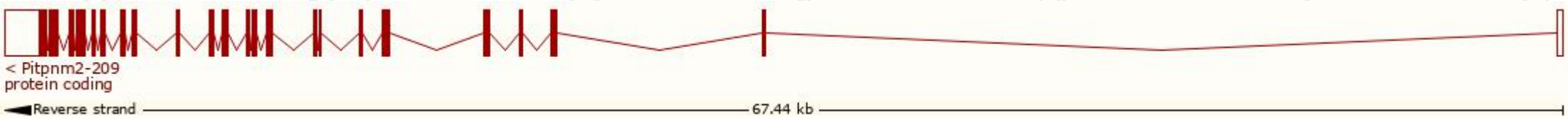
Official Symbol	Pitpnm2 provided by MGI
Official Full Name	phosphatidylinositol transfer protein, membrane-associated 2 provided by MGI
Primary source	MGI:MGI:1336192
See related	Ensembl:ENSMUSG00000029406
Gene type	protein coding
RefSeq status	VALIDATED
Organism	Mus musculus
Lineage	Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
Also known as	NIR3, RDGBA2, Rdgb2, mKIAA1457
Expression	Broad expression in thymus adult (RPKM 44.3), adrenal adult (RPKM 32.8) and 25 other tissues See more
Orthologs	human all

Transcript information（Ensembl）

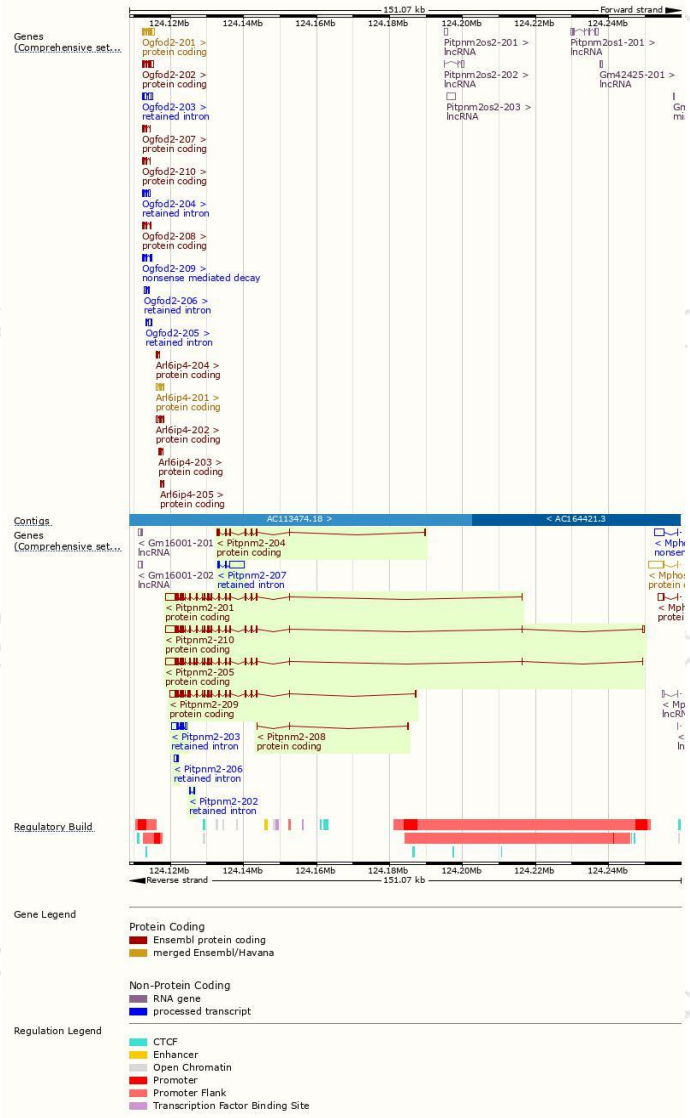
The gene has 10 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Biotype	CCDS	UniProt	Flags
Pitpnm2-210	ENSMUST00000162812.7	6952	1281aa	Protein coding	CCDS19674	Q6ZPQ6	TSL:1 GENCODE basic APPRIS P3
Pitpnm2-201	ENSMUST00000086123.10	6620	1281aa	Protein coding	CCDS19674	Q6ZPQ6	TSL:1 GENCODE basic APPRIS P3
Pitpnm2-209	ENSMUST00000161938.7	5866	1335aa	Protein coding	CCDS71669	Q6ZPQ6	TSL:1 GENCODE basic APPRIS ALT2
Pitpnm2-205	ENSMUST00000161273.7	6792	1331aa	Protein coding	-	E9PYJ7	TSL:5 GENCODE basic APPRIS ALT2
Pitpnm2-204	ENSMUST00000159677.7	1690	436aa	Protein coding	-	A0A0G2JFQ8	TSL:5 GENCODE basic
Pitpnm2-208	ENSMUST00000161644.2	404	40aa	Protein coding	-	E0CXR4	CDS 3' incomplete TSL:5
Pitpnm2-207	ENSMUST00000161530.1	4622	No protein	Retained intron	-	-	TSL:2
Pitpnm2-203	ENSMUST00000159628.7	2755	No protein	Retained intron	-	-	TSL:2
Pitpnm2-206	ENSMUST00000161479.1	869	No protein	Retained intron	-	-	TSL:2
Pitpnm2-202	ENSMUST00000159010.1	525	No protein	Retained intron	-	-	TSL:5

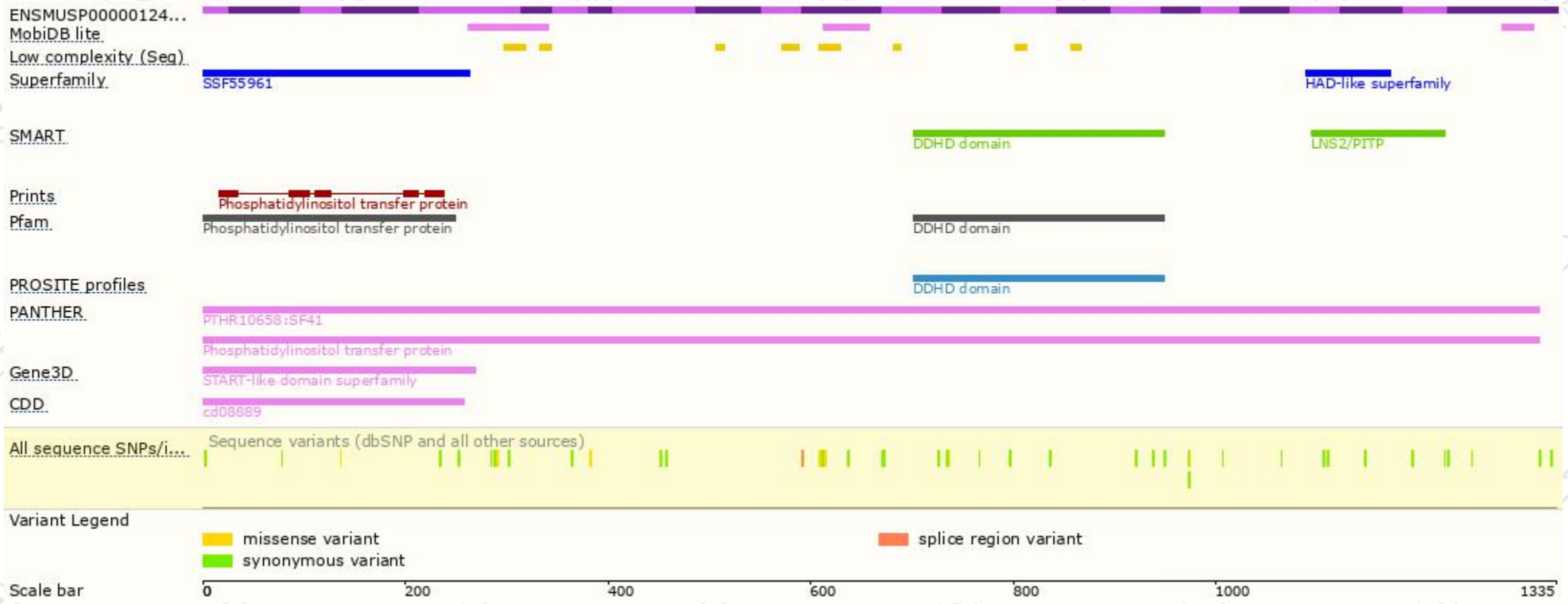
The strategy is based on the design of *Pitpnm2-209* transcript,The transcription is shown below



Genomic location distribution



Protein domain



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If you have any questions, you are welcome to inquire.

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